

CLAIMS

What is claimed is:

- 5 1. A director plate for use in a fuel injector for an internal combustion engine, the plate having fuel inlet and fuel exit surfaces and having at least one passage, said at least one passage having a passage wall formed between said inlet and exit surfaces for conduction of fuel through the plate between a passage inlet and a passage exit of said at least one passage, wherein a numerical surface roughness of
10 said exit surface adjacent said passage exit of said at least one passage is less than about (R_a) $0.2\mu\text{m}$.
2. A director plate in accordance with Claim 1 wherein said numerical surface roughness is less than about (R_a) $0.1\mu\text{m}$.
- 15 3. A director plate in accordance with Claim 1 wherein the numerical roughness of said passage wall adjacent said passage exit of said at least one passage is less than about (R_a) $0.2\mu\text{m}$.
- 20 4. A director plate in accordance with Claim 3 wherein said numerical surface roughness is less than about (R_a) $0.1\mu\text{m}$.
5. A director plate in accordance with Claim 1 wherein a juncture between said passage wall and said fuel exit surface defines an exit corner and wherein a
25 numerical surface roughness of said exit corner is less than about (R_a) $0.2\mu\text{m}$.
6. A director plate in accordance with Claim 5 wherein the numerical surface roughness of said exit corner is less than about (R_a) $0.1\mu\text{m}$.

7. A fuel injector for use in an internal combustion engine, said fuel injector comprising a director plate having fuel inlet and fuel exit surfaces and having at least one passage, said at least one passage having a passage wall formed between said inlet and exit surfaces for conduction of fuel through the plate between a passage inlet and a passage exit of said at least one passage, wherein a numerical surface roughness of said exit surface adjacent said passage exit of said at least one passage is less than about (R_a) $0.2\mu\text{m}$.

8. A fuel injector in accordance with Claim 7 wherein the numerical roughness of said passage wall adjacent said passage exit of said at least one passage is less than about (R_a) $0.1\mu\text{m}$.

9. A fuel injector in accordance with Claim 7 wherein a juncture between said passage wall and said fuel exit surface defines an exit corner and wherein a numerical surface roughness of said exit corner is less than about (R_a) $0.2\mu\text{m}$.

10. A fuel injector in accordance with Claim 9 wherein the numerical surface roughness of said exit corner is less than about (R_a) $0.1\mu\text{m}$.

11. A director plate for use in a fuel injector for an internal combustion engine, the plate having fuel inlet and fuel exit surfaces and having at least one passage, said at least one passage having a passage wall formed between said inlet and exit surfaces for conduction of fuel through the plate between a passage inlet and a passage exit of said at least one passage, wherein a numerical surface roughness of said passage wall adjacent said passage exit of said at least one passage is less than about (R_a) $0.2\mu\text{m}$.

12. A director plate in accordance with Claim 11 wherein said numerical surface roughness is less than about (R_a) $0.1\mu\text{m}$.

13. A director plate for use in a fuel injector for an internal combustion engine, the plate having fuel inlet and fuel exit surfaces and having at least one passage, said at least one passage having a passage wall formed between said inlet and exit surfaces for conduction of fuel through the plate between a passage inlet and a passage exit of said at least one passage, wherein a juncture between said passage wall and said fuel exit surface defines an exit corner and wherein a numerical surface roughness of said exit corner is less than about (R_a) $0.2\mu\text{m}$.

14. A director plate in accordance with Claim 13 wherein said numerical surface roughness is less than about (R_a) $0.1\mu\text{m}$.

15. An internal combustion engine comprising a fuel injector including a director plate having fuel inlet and fuel exit surfaces and having at least one passage, said at least one passage having a passage wall formed between said inlet and exit surfaces for conduction of fuel through the plate between a passage inlet and a passage exit of said at least one passage, wherein a numerical surface roughness of said exit surface adjacent said passage exit of said at least one passage is less than about (R_a) $0.2\mu\text{m}$.

16. An internal combustion engine in accordance with Claim 15 wherein the numerical roughness of said passage wall adjacent said passage exit of said at least one passage is less than about (R_a) $0.1\mu\text{m}$.